CLAIMS

1. An optical element disposed on an optical path of first laser light and a plurality of laser lights, in order to share an objective lens for focusing light on a first recording medium, which comprises a recording layer which receives the first laser light through a transmission protection layer with a thickness of D1, in the plurality of laser lights whose wavelengths are different from that of the first laser light and in a plurality of recording media corresponding to the respective plurality of laser lights,

the plurality of laser lights including second laser light which corresponds to a second recording medium having a transmission protection layer with a thickness of D2 (D2 > D1), and third laser light which corresponds to a third recording medium having a transmission protection layer with a thickness of D3 (D3 > D2) and is used in a finite system,

an effective diameter of a luminous flux required when the first laser light enters the objective lens being R1,

an effective diameter of a luminous flux required when the second laser light enters the objective lens being R2 (R1 > R2),

an effective diameter of a luminous flux required when the third laser light enters the objective lens being R3 (R2 > R3),

said optical element comprising:

a first aberration correcting device for correcting aberration caused by a difference between the thickness D1 of the transmission protection layer and the thickness D2 of the transmission protection layer and a difference in wavelength between the first laser light and the second laser light, said first aberration correcting device being disposed in an area corresponding to the

effective diameter R2 of an incidence plane or an emit plane of said optical element; and

a second aberration correcting device for correcting aberration caused by the difference between the thickness D1 of the transmission protection layer and the thickness D2 of the transmission protection layer, a difference between the thickness D1 of the transmission protection layer and the thickness D3 of the transmission protection layer, the difference in wavelength between the first laser light and the second laser light and a difference in wavelength between the first laser light and the third laser light, said second aberration correcting device being disposed in an area corresponding to the effective diameter R3 of the incidence plane or the emit plane.

2. The optical element according to claim 1, wherein said first aberration correcting device and said second aberration correcting device are formed in different areas of the incidence plane or the emit plane, and formed in a concentric and zonal pattern.

3. The optical element according to claim 1, wherein

said first aberration correcting device is formed in a zonal pattern with an outer diameter associated with the R2 and an inner diameter associated with the R3, on the incidence plane or the emit plane, and

said second aberration correcting device is formed in a circular pattern with a diameter associated with the R3, on the incidence plane or the emit plane.

4. The optical element according to claim 1, wherein wavelength range of the first laser light is 400 to 410 nm, wavelength range of the second laser light is 635 to 670 nm and wavelength ranges of the third laser light is 780 to 810nm.

5. The optical element according to claim 1, wherein each of said first and second aberration correcting devices is a diffraction pattern in which a plurality of phase steps are formed in association with wavelength of each of the first laser light, the second laser light and the third laser light.

6. The optical element according to claim 5, wherein said first aberration correcting device is formed to maximize diffraction efficiency of even-order (except for a multiple of 10) diffracted light of the first laser light, and said second aberration correcting device is formed to maximize diffraction efficiency of odd-order (except for a multiple of 5) diffracted light of the first laser light.

7. The optical element according to claim 6, wherein the even-order diffracted light is second-order diffracted light.

8. The optical element according to claim 6, wherein the odd-order diffracted light is first-order diffracted light.

9. The optical element according to claim 1, wherein said optical element is disposed with the objective lens as one body.

10. An optical pickup comprising the optical element according to claim 1.

11. An optical information recording / reproducing apparatus comprising the optical pickup according to claim 10.